# Chemical Safety Data Sheet MSDS / SDS

## Potassium SDS

Revision Date:2024-04-25 Revision Number:1



## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### Product identifier

Product name: Potassium

CAS: 7440-09-7

### Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

### Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

## SECTION 2: Hazards identification

### Classification of the substance or mixture

Substances and mixtures, which in contact with water, emit flammable gases, Category 1
Skin corrosion, Sub-category 1B

## GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

### Hazard statement(s)

H260 In contact with water releases flammable gases which may ignite spontaneously
H314 Causes severe skin burns and eye damage

### Precautionary statement(s)

### Prevention

P223 Do not allow contact with water.
P231+P232 Handle and store contents under inert gas/....Protect from moisture.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash ... thoroughly after handling.

### Response

P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].
P370+P378 In case of fire: Use ... to extinguish.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

### Storage

P402+P404 Store in a dry place. Store in a closed container.
P405 Store locked up.

### Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and

regulations, and product characteristics at time of disposal.

**Other hazards which do not result in classification**

no data available

## SECTION 3: Composition/information on ingredients

**Substance**

| | |
|---|---|
| Chemical name: | Potassium |
| Common names and synonyms: | Potassium |
| CAS number: | 7440-09-7 |
| EC number: | 231-119-8 |
| Concentration: | 100% |

## SECTION 4: First aid measures

**Description of necessary first-aid measures**

**If inhaled**

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.

**Following skin contact**

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

**Following eye contact**

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

**Following ingestion**

Rinse mouth. Refer for medical attention .

**Most important symptoms/effects, acute and delayed**

SOLID: Will burn skin and eyes. (USCG, 1999)

### Indication of immediate medical attention and special treatment needed, if necessary

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool . Cover skin burns with dry sterile dressings after decontamination . Poisons A and B

## SECTION 5: Firefighting measures

### Suitable extinguishing media

Do not use water, carbon dioxide or carbon tetrachloride. use dry graphite, soda ash, powdered sodium chloride or appropriate dry powder. personal protection: wear full protective clothing.

### Specific hazards arising from the chemical

Combustible. IGNITES WHEN EXPOSED TO WATER OR MOISTURE. Flammable gas is produced on contact with water. Reacts violently with water, forming flammable and explosive hydrogen gas. May ignite spontaneously in air. (USCG, 1999)

### Special protective actions for fire-fighters

Use special powder, dry sand. NO other agents. Combat fire from a sheltered position.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Cover the spilled material with dry powder.

### Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Cover the spilled material with dry powder.

### Methods and materials for containment and cleaning up

Spill Handling: Evacuate persons not wearing protective equipment from area of spill or leak until clean-up is complete. Remove all ignition sources. Collect powdered material in the most convenient and safe manner and deposit in sealed containers. Ventilate area after clean-up is complete. Keep potassium out of a confined space, such as a sewer, because of the possibility of an explosion, unless the sewer is designed to prevent the build-up of explosive concentrations. ...

## SECTION 7: Handling and storage

### Precautions for safe handling

NO contact with water, acids or halogens. NO open flames, NO sparks and NO smoking. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

Fireproof. Keep under mineral oil. Dry. Well closed.PROTECT AGAINST PHYSICAL DAMAGE. KEEP AWAY FROM WATER OR LOCATION WHERE WATER MAY BE NEEDED FOR FIGHTING FIRE... AVOID HIGH TEMP. STORE UNDER NITROGEN OR KEROSINE. NEVER STORE UNDER HALOGENATED HYDROCARBONS. DETACHED FIRE-RESISTIVE BUILDING RECOMMENDED FOR QUANTITY STORAGE.

## SECTION 8: Exposure controls/personal protection

### Control parameters

### Occupational Exposure limit values

no data available

### Biological limit values

no data available

### Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures, such as personal protective equipment (PPE)

**Eye/face protection**

Wear face shield.

**Skin protection**

Protective gloves. Protective clothing.

**Respiratory protection**

Use closed system or ventilation.

**Thermal hazards**

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

| | |
|---|---|
| Physical state: | Potassium is a soft silvery metal though normally grayish white due to oxidation. |
| Colour: | Soft, silvery-white metal; body centered cubic structure |
| Odour: | no data available |
| Melting point/freezing point: | 63°C |
| Boiling point or initial boiling point and boiling range: | 760°C(lit.) |
| Flammability: | Highly flammable. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire. |
| Lower and upper explosion limit/flammability limit: | no data available |
| Flash point: | Not Applicable. Combustible solid. (USCG, 1999) |
| Auto-ignition temperature: | no data available |

| | |
|---|---|
| Decomposition temperature: | no data available |
| pH: | no data available |
| Kinematic viscosity: | no data available |
| Solubility: | Soluble |
| Partition coefficient n-octanol/water: | no data available |
| Vapour pressure: | 0.09 mm Hg ( 260 °C) |
| Density and/or relative density: | 0.86g/mLat 25°C(lit.) |
| Relative vapour density: | 1.4 (Air = 1) |
| Particle characteristics: | no data available |

## SECTION 10: Stability and reactivity

### Reactivity

Reacts violently with water. This generates fire and explosion hazard. Decomposes rapidly under the influence of air and moisture. This produces flammable/explosive gas (hydrogen - see ICSC 0001).

### Chemical stability

Stable, if protected from air or moisture.

### Possibility of hazardous reactions

Extremely dangerous in contact with moisture or water, releasing hydrogen with sufficient heat to cause ignition or explosion. May ignite spontaneously in air or oxygen. Burns violently, accompanied by explosions which cause spattering...Very reactive. A strong reducing agent. Boron trifluoride reacts with incandescence when heated with potassium [Merck 11th ed. 1989]. Maleic anhydride decomposes explosively in the presence of potassium[Chem Safety Data Sheet SD-88. 1962]; [Chem. Haz. Info. Series C-71. 1960]. Sodium peroxide oxidizes potassium with incandescence [Mellor 2:490-93. 1946-47]. May catalyze rearrangement and polymerization of ethylene oxide liberating heat [J. Soc. Chem. Ind. 68:179. 1949]. A mixture of potassium and any of the

following metallic halides produces a strong explosion on impact: aluminum chloride, aluminum fluoride, ammonium fluorocuprate, antimony tribromide, antimony trichloride, antimony triiodide, cadmium bromide, cadmium chloride, cadmium iodide, chromium tetrachloride, cupric bromide, cupric chloride, cuprous bromide cuprous chloride, cuprous iodide, manganese chloride, mercuric bromide, mercuric chloride, mercuric fluoride, mercuric iodide, mercurous chloride, nickel bromide, nickel chloride, nickel iodide, silicon tetrachloride, silver fluoride, stannic chloride, stannic iodide (with silver), stannous chloride, sulfur dibromide, thallous bromide, vanadium pentachloride, zinc bromide, zinc chloride, and zinc iodide [Mellor 2, Supp. 3:1571. 1963]. A mixture of potassium and any of the following compounds produces a weak explosion on impact: ammonium bromide, ammonium iodide, cadmium fluoride, chromium trifluoride, manganous bromide, manganous iodide, nickel fluoride, potassium chlorocuprate, silver chloride, silver iodide, strontium iodide, thallous chloride, and zinc fluoride [Mellor 2, Supp. 3:1571. 1963]. A mixture of potassium and any of the following compounds may explode on impact: boric acid, copper oxychloride, lead oxychloride, lead peroxide, lead sulfate, silver iodate, sodium iodate, and vanadium oxychloride [Mellor 2, Supp. 3:1571. 1963]. A mixture of potassium with any of the following compounds produces a very violent explosion on impact: boron tribromide, carbon tetrachloride, cobaltous bromide, cobaltous chloride, ferric bromide, ferric chloride, ferrous bromide, ferrous chloride, ferrous iodide, phosphorus pentachloride, phosphorus tribromide, and sulfur dichloride [Mellor 2, Supp. 3:1571. 1963]. Mixture of solid potassium and solid carbon dioxide (Dry Ice) explodes when subjected to shock [Mellor 2, Supp. 3:1568. 1963]. Potassium and its alloys form explosive mixtures with chlorinated hydrocarbons [Chem. Eng. News 26:2604. 1948]. Potassium in contact with the following oxides causes an explosive reaction: potassium ozonide, potassium peroxide, or potassium superoxide [Mellor 2, Supp. 3:157. 1963].

### Conditions to avoid

no data available

### Incompatible materials

Reacts violently with water, carbon dioxide or carbon tetrachloride.

### Hazardous decomposition products

Fumes from burning potassium are highly irritating to skin, eyes & mucous membranes.

## SECTION 11: Toxicological information

### Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

no data available

**Reproductive toxicity**

no data available

**STOT-single exposure**

See ICSC 0357 (potassium hydroxide).

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

## SECTION 12: Ecological information

**Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**Other adverse effects**

no data available

## SECTION 13: Disposal considerations

**Disposal methods**

**Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

**Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## SECTION 14: Transport information

### UN Number

ADR/RID: UN2257 (For reference only, please check.)
IMDG: UN2257 (For reference only, please check.)
IATA: UN2257 (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: POTASSIUM (For reference only, please check.)
IMDG: POTASSIUM (For reference only, please check.)
IATA: POTASSIUM (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: 4.3 (For reference only, please check.)
IMDG: 4.3 (For reference only, please check.)
IATA: 4.3 (For reference only, please check.)

### Packing group, if applicable

ADR/RID: I (For reference only, please check.)
IMDG: I (For reference only, please check.)
IATA: I (For reference only, please check.)

### Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

### Special precautions for user

no data available

### Transport in bulk according to IMO instruments

no data available

## SECTION 15: Regulatory information

**Safety, health and environmental regulations specific for the product in question**

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

**EC Inventory**

Listed.

**United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

**China Catalog of Hazardous chemicals 2015**

Listed.

**New Zealand Inventory of Chemicals (NZIoC)**

Listed.

**(PICCS)**

Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC)**

Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

## SECTION 16: Other information

**Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

**References**

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

**Other Information**

Potassium is always kept under mineral oil.Reacts violently with fire extinguishing agents such as water and carbon dioxide.